

Period:

Date:

Name:

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## Outdoor Observation #2

**“Which way does the northern night sky move?”**

**Abstract:** In this exercise you are to determine the direction of the night sky's motion through your observation of the Big Dipper. To do this, you must observe the constellation twice in one night and the time between observations must be as long as possible. The longer the interval between observations, the more easily you will be able to determine the direction of motion that occurs. ( $\geq 2$  hours)

**To Begin:** go out just after night has fallen and locate Ursa Major (Big Dipper) in the sky. The constellation will be large, nearly horizontal and close to the northwestern horizon. \*If you are doing this in the winter Ursa Major will be nearly vertical in the northeastern sky.

1. Once you have located Ursa Major, you should draw a rough schematic (layout) of your horizon. Your schematic might contain a few rough trees and a house or two, and should resemble the horizon visible below Ursa Major. **You may make this drawing on the back of this paper. Fill the whole space!**
2. Once you have drawn the horizon, you should draw Ursa Major as it appears in the sky compared to the horizon. Do this as accurately as possible. **Label the drawing with the time at which you made the drawing!!!** You are finished for a few hours. Let as much time pass as you can before you do the next drawing.
3. When the time comes to make your second drawing, do it on the same picture you drew before. The two Dippers (Ursa Majors) should not line up with each other. There should be a perceptible (noticeable) difference between the first and second positions of the constellations you drew. Be sure to label the second drawing with the time at which the drawing was made.

### Questions

1. In what direction did Ursa Major (the Dipper) move: clockwise or counter clockwise? (Imagine a giant clock in the sky like the clock on our class wall, and the Dipper is near the 6 o'clock position)
2. Based upon your answer to #1, which way does the Earth rotate: clockwise or counter clockwise? What would you say about Earth's rotation if you were facing south?
3. Exactly how much time will it take for Ursa Major to return where it first was when you began your observation? The answer should be exact to the minute, not just in hours.